Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 11

M.Sc.(Chemistry) (2018 Batch) (Sem.-1)

REACTIVE INTERMEDIATES-I

Subject Code : CHL-402-18

Paper ID : [75114]

Time : 3 Hrs. Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains EIGHT questions carrying FIVE marks each and students have to attempt any SIX questions.**
3. **SECTION-C will comprise of two compulsory questions each question carries TEN marks.**

SECTION-A

Q1 Answer briefly :

a) What do you mean by Isotope effects? Explain with example.

b) Write a short note on Taft equation.

c) Discuss the important conditions for aromaticity.

d) Why a tertiary (3°) RX does not undergo SN^2 reaction? Explain.

e) Why does quinuclidine react faster than triethylamine with isopropyl iodide instead of methyl iodide in an SN^2 reaction?

f) Write a short note on ambient nucleophile.

g) Why $CHCI_3$ is more reactive than CHF_3 in SN^1 reaction?

h) Write a short note on ipso attack.

i) Why allyl free radical is much easier to form, and is more stable, than even the tertiary free radical?

j) How do you define autoxidation? Discuss the mechanism of conversion of benzaldehyde to benzoic acid.

SECTION-B

Q2 Discuss the thermodynamics and kinetic requirements for the organic reactions.

Q3 Show that the Hammett equation represents a linear free energy relationship.

Q4 Discuss the effect of nucleophile and leaving group upon aliphatic nucleophilic substitution reaction.

Q5 Discuss Sommelet-Hauser and Smiles Rearrangements.

Q6 Discuss the mechanism of SEi reaction. Compare it with SE1 and SE2 mechanism.

Q7 Suggest the mechanism of Gatterman-Koch and Hoben-Hoesch reactions.

Q8 Discuss the orientation in elimination reactions with reference to Saytzeff and Hofmann rules.

Q9 Write short notes on free radical mechanism on the reactivity for aliphatic and aromatic substrates.

SECTION-C

Q10 Discuss in brief the orientation and reactivity in monosubstituted benzene for electron donating and electron withdrawing groups. (10)

Q11 a) Discuss the factors affecting the reactivity in aliphatic electrophilic substitution reactions. (6)

b) Write a short note on phase transfer catalysts. (4)